

REMARKS

The applicants have considered the Office action dated September 24, 2007, and the references it cites. By way of this response, claims 1, 4-5, 7, 9-12, 14 and 16-18 have been amended. Accordingly, all claims 1-18 are pending and at issue, of which claims 1, 5 and 12 are independent. In view of the foregoing amendments and the following remarks, it is respectfully submitted that the pending claims are in condition for allowance and favorable reconsideration is respectfully requested.

Rejections of Claim 1-4

The Office action rejected pending independent claim 1 as being obvious in view of *Gulick* (U.S. Pub. No. 2001/0003166) and *Inoue* (U.S. Pub. No. 2003/0059063) under 35 U.S.C. § 103(a). Independent claim 1, as currently amended, recites an audio amplifier electrical circuit comprising, *inter alia*, a volume control circuit that activates volume control inputs of a pre-amplified audio circuit when a supervisory circuit detects a power signal used to supply device power to the audio amplifier is beyond a pre-determined limit.

It is well settled that, “[t]o support the conclusion that the claimed invention is directed to *obvious* subject matter, either the references must *expressly or impliedly suggest the claimed invention* or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references.” M.P.E.P. § 706.02(j) (citing *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985)) (emphasis added). Furthermore, to establish a *prima facie* case of obviousness under the rationale that a combination of prior

art references expressly or impliedly suggests the claimed invention, *each element of the claim must be found* in the cited references. M.P.E.P. § 2143(A) (citing *KSR International Co. v. Teleflex Inc.*, 550 U.S. ___, ___, 82 USPQ2d 1385, 1395 (2007)). Here, no cited prior art reference includes a supervisory circuit to monitor/detect a power signal used to supply device power to an audio amplifier. Amended claim 1, therefore, is directed to nonobvious subject matter over the art of record because no reference or combination of references cited in the Office action expressly or impliedly suggests the recited volume control circuit that activates the volume control inputs of the pre-amplified audio circuit when the supervisory circuit detects the *power signal used to supply device power to the audio amplifier* is beyond the pre-determined limit.

More specifically, the Office action admits that *Gulick* fails to teach the recited aspects of the originally claimed volume control circuit (see pp. 2-3 of the Office action). Furthermore, while *Gulick* describes monitoring digital audio data and analog audio input signals, *Gulick* fails to describe or even suggest monitoring a *power signal used to supply device power* to an audio amplifier. Thus, *Gulick* is missing the recited supervisory circuit to monitor/detect the power signal used to supply device power to the audio amplifier.

Inoue is directed to preventing distortion of an audio signal output by an audio amplifier (see the abstract of *Inoue*). *Inoue* describes a sound volume adjusting circuit including the variable resistor 1 located at the audio output of the AGC amplifier 3 and driving the audio inputs of the power amplifiers 105 coupled to the speakers 106 (see *Inoue* ¶¶ [0028]-[0031]). *Inoue*'s sound

volume adjusting circuit “detects a sound volume set-point value set by the variable resistor 1 for adjusting the sound volume of the speakers 106” (see *Inoue* ¶ [0028]). The detected sound volume set-point value is then combined with the audio input signal to generate a control signal to control an amplification factor of the AGC amplifier 3, with the goal of preventing audio signal distortion (see *Inoue* ¶ [0029]).

Contrary to *Inoue*’s teachings, independent claim 1, as now amended, recites a volume control circuit that activates volume control inputs of a pre-amplified audio circuit when a supervisory circuit detects a *power signal used to supply device power* to the audio amplifier is beyond a pre-determined limit. As described in the preceding paragraph, *Inoue* does not monitor/detect a power signal used to supply device power to an audio amplifier, but instead detects the sound volume set-point value set by the variable resistor 1 to adjust the sound volume of the audio signal input to the amplifiers 105. Amended claim 1 makes it clear that the intended signal to be monitored is the power signal *supplying device power* to the audio amplifier, and not an audio signal or a set point associated with an audio signal as described by *Inoue*. Furthermore, nowhere does *Inoue* even suggest monitoring the power signal *supplying device power* to the audio amplifier, and it is certainly not obvious how monitoring such a power supply signal would achieve *Inoue*’s stated goal of preventing distortion of an audio signal output by an audio amplifier. Therefore, *Inoue* cannot be said to include or fairly suggest the recited supervisory circuit to monitor/detect the power signal used to supply device power to the audio amplifier.

Because both *Gulick* and *Inoue* are missing the recited supervisory circuit to monitor/detect the power signal used to supply device power to the audio amplifier, it follows that no combination of these references can expressly or impliedly suggest the volume control circuit or, more broadly, the audio amplifier electrical circuit recited by claim 1, as currently amended. Therefore, it is respectfully submitted that *Gulick* and *Inoue*, either alone or in combination, fail to render obvious amended claim 1 or claims 2-4 depending therefrom.

Other cited art is even less relevant. For example, neither *Okamoto* (U.S. Patent 6,573,693) nor *Martin* (U.S. Patent 7,171,010) overcome the deficiencies of *Gulick* and *Inoue* with respect to amended independent claim 1. For example, while *Okamoto* describes a circuit for limiting input current to a USB device, nowhere does *Okamoto* describe or fairly suggest monitoring a *power signal supplying device power to an audio amplifier or activating volume control inputs* based on detecting such a power signal. The amplifier A1 described by *Okamoto* is simply an operational amplifier implementing a comparison function (e.g., to compare the voltage V_{adj} with the voltage V_{ref}) and bears no resemblance to the audio amplifier recited by amended claim 1. Moreover, the voltage signals compared (e.g., monitored) in *Okamoto* are voltages applied to the *inverting and non-inverting input terminals* of the operational amplifier A1, and neither compared voltage is described or fairly suggested to be supplying *device power* to the operational amplifier A1. *Martin* describes an audio processor with a variable filter controlled by processing certain frequencies of an audio output signal, and is not concerned

with controlling power, much less monitoring a power signal supplying device power to an audio amplifier.

Accordingly, because no reference or combination of references cited in the Office action expressly or impliedly suggests the supervisory circuit, the volume control circuit or, more broadly, the audio amplifier electrical circuit recited by amended claim 1, withdrawal of the rejection of claim 1 under 35 U.S.C § 103(a) is respectfully requested. Furthermore, it is respectfully submitted that pending amended claim 1 and claims 2-4 depending therefrom are in condition for allowance and favorable reconsideration is respectfully requested.

Rejections of Claim 5-11

The Office action rejected pending independent claim 5 as being obvious in view of *Gulick* and *Inoue* under 35 U.S.C. § 103(a). Independent claim 5, as currently amended, recites an audio amplifier system for driving computer speakers connected to a bus port comprising, *inter alia*, an audio amplifier comprising an audio input, an audio output and a power supply input, wherein the power supply input is different from the audio input and the audio output. Amended claim 5 also recites, *inter alia*, a volume control circuit that activates volume control inputs of a DAC when a supervisory circuit detects a power signal used to drive the power supply input of the audio amplifier is beyond a pre-determined limit.

Similar to amended independent claim 1, independent claim 5, as currently amended, is directed to nonobvious subject matter over the art of record because no reference or combination of references cited in the Office action expressly or impliedly suggests the recited volume control circuit that

activates the volume control inputs when the supervisory circuit detects the *power signal used to drive the power supply input of the audio amplifier* is beyond a pre-determined limit, wherein the *power supply input is different from the audio input and the audio output*. For example, the Office action admits that *Gulick* fails to teach the recited volume control circuit (see p. 4 of the Office action). As reasoned above in connection with the rejection of claim 1, while being directed to preventing audio signal distortion, *Inoue* fails to describe or fairly suggest any monitoring of a power signal *driving a power supply input of an audio amplifier*, much less a power supply input that is *different from the audio input and the audio output* of the audio amplifier. Furthermore, and as described in detail above, both *Okamoto* and *Martin* also fail to describe or fairly suggest monitoring the power signal driving the power supply input of the audio amplifier as recited by amended claim 5.

Based on the foregoing deficiencies, no reference or combination of references cited in the Office action expressly or impliedly suggests a supervisory circuit that detects a *power signal used to drive a power input of an audio amplifier* that is different from the audio amplifier's audio input and audio output, much less a volume control circuit that activates volume control inputs of a DAC when such a detected power signal is beyond a pre-determined limit.¹ By failing to even suggest such aspects of the claim, amended claim 5 cannot be considered obvious in light of *Gulick*, *Inoue*, *Okamoto* and/or *Martin*, either alone or in any combination. Therefore, withdrawal of the rejection of claim 5 under 35 U.S.C § 103(a) is respectfully

¹ Claim 7, as amended, recites additional aspects of the claimed volume control circuit, thus expanding upon the distinctions between the instant application and the prior art of record.

requested. Furthermore, it is respectfully submitted that pending amended claim 5 and claims 6-11 depending therefrom are in condition for allowance and favorable reconsideration is respectfully requested.

Rejections of Claim 12-18

The Office action rejected pending independent claim 12 as being obvious in view of *Gulick* and *Inoue* under 35 U.S.C. § 103(a). Independent claim 12, as currently amended, recites an audio amplifier system for driving computer speakers connected to a USB port comprising, *inter alia*, a power supervisory circuit that monitors a power signal provided by a power input of a bus port connection and used to supply device power to an audio amplifier. Amended independent claim 12 also recites, *inter alia*, a volume control circuit that activates volume control inputs of a USB DAC when the supervisory circuit detects the power signal provided by the power input of the bus port connection is beyond a pre-determined limit.

Similar to amended independent claims 1 and 5, independent claim 12, as currently amended, is directed to nonobvious subject matter over the art of record because no reference or combination of references cited in the Office action expressly or impliedly suggests the recited power supervisory circuit that monitors the *power signal* provided by the *power input of the bus port connection* and used to supply device power to the audio amplifier, much less the recited volume control circuit that activates the volume control inputs when the supervisory circuit detects the *power signal provided by the power input of the bus port connection* is beyond a pre-determined limit. For example, the Office action admits that *Gulick* fails to teach the recited volume control circuit (see p. 4 of the Office action). As discussed above in

connection with the rejection of claim 1, *Inoue* is directed to preventing audio signal distortion, and fails to describe or fairly suggest any monitoring of a *power signal used to supply device power to the audio amplifier*, much less a *power signal provided by the power input of the bus port connection*. Furthermore, and as described in detail above, both *Okamoto* and *Martin* also fail to describe or fairly suggest monitoring the power signal used to supply device power to the audio amplifier as recited amended claim 12.

Based on the foregoing deficiencies, no reference or combination of references cited in the Office action expressly or impliedly suggests a supervisory circuit that detects a *power signal provided by a power input of a bus port connection and used to supply device power to an audio amplifier*, much less a volume control circuit that activates volume control inputs of a USB DAC when such a detected power signal is beyond a pre-determined limit.² By failing to even suggest such aspects of the claim, amended claim 12 cannot be considered obvious in light of *Gulick*, *Inoue*, *Okamoto* and/or *Martin*, either alone or in any combination. Therefore, withdrawal of the rejection of claim 12 under 35 U.S.C § 103(a) is respectfully requested. Furthermore, it is respectfully submitted that pending amended claim 12 and claims 13-18 depending therefrom are in condition for allowance and favorable reconsideration is respectfully requested.

² Claim 14, as amended, recites additional aspects of the claimed volume control circuit, thus expanding upon the distinctions between the instant application and the prior art of record.

If the examiner is of the opinion that a telephone conference would expedite the prosecution of this case, the examiner is invited to contact the undersigned at the number identified below.

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